Center for Chemical Separations

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Established as a center in 1987. Researchers with backgrounds in organic chemistry, inorganic chemistry and chemical engineering are studying the full development of a new ligand bonded silica gel technology. The resulting products are used in a variety of separation systems. A few applications of center technology include precious and base metals refining, heavy metal and organic clean-up and nuclear waste management.

Overview

Current State Contract . $50,000

FY92 Matching Funds . $409,445
Cumulative $2,204,025

Total Jobs Created 41
Industry 25
Center 16

Direct Center Spin-offs 1

Total Benefiting Utah Companies 9

License Agreements 1

Patents Applied 14

Patents Issued 9

Technologies

*Pilot plant scale up for individual separations
*Individually designed macrocycles for molecule separations
*Patented technique for attaching macrocycles to solid substrate allows for reuse
*Ligand bonded silicagel (Superlig) technology
*Researching use of superlig materials to remove selected components from highly acidic radioactive waste
Areas for Technology Application include:

1. Precious and base metals refining, mining & recycling
2. Heavy metal and organic clean-up from industrial effluents in water and air
3. Analytical scale separation and concentration of species of industrial, medical and environmental importance
4. Nuclear waste management

Status

*Methodology for precious metals separations developed
*Selling product to industry
*Need to develop capability in gas, high purity materials and biological separations
*Capability in environmental, analytical & precious metals markets
*Battelite Pacific Northwest Laboratories are funding radioactive cleanup studies
*Set up pilot plants in 4 of the largest precious metal refineries in the USA. Metals of interest are rhodium, platinum and palladium
*Negotiations completed for a grant from Thiokol to develop materials for the removal of ppm amounts of heavy metals from culinary and waste water streams
*Recipient of a Phase III SBIR Grant from Metre-General, Inc.
*Superlig materials capable of making quantitative separations

Economic Impact

*Created spin-off company IBC with 25 jobs.

*Company attracting many sources of growth capital.

*Process for separating platinum rhodium represents a 40-60% cost reduction to the industry

*Potential for developing multi-million dollar system to clean up accumulated nuclear waste

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